3/8/06
Dear Mr. Nelson,

Thanks for sending along the link to the very interesting Oken paper. I had not yet seen it.

To arrive at an estimate of how many IQ points of difference would be predicted by an 8-percentage point difference in infant VRM, one would apply the following formula:

Y = BX, where Y is the predicted difference in IQ points, X is the actual difference in VRM percentages, and B is the unstandardized regression coefficient from a regression equation predicting IQ from VRM, which can be computed as B = r(SD-Y/SD-X) – i.e., the correlation coefficient for the relation of infant VRM to IQ multiplied by the standard deviation of Y divided by the standard deviation of X.

Using the value for r of about .45 (the raw median correlation derived from a meta-analysis (see McCall & Carriger, 1993 Child Development, vol 64, pp 57-79), and taking 15 points as the SD of IQ (standardization value), and about 7% as a common SD of VRM (see Rose et al references below), the IQ point difference predicted by an 8 percentage point difference in VRM would be .45*(15/7)*8 = 7.1.

Other estimates, using variants of the values taken above for r (.36 = the weighted average of normalized correlations from McCall & Carriger) and for SD of VRM and IQ are shown in the table below.

VRM-DIFF	SD-VRM	SD-IQ	R:VRM-IQ	IQ-DIFF	
8	7.1	12.4	0.41	5.73	R, SD-VRM, & SD-IQ from Rose et al 1997
8	10	15	0.45	5.40	R from McCall & Carriger (1993)
8	7	15	0.45	7.71	R from McCall & Carriger (1993)
8	10	15	0.36	4.32	R from McCall & Carriger (1993)
8	7	15	0.36	6.17	R from McCall & Carriger (1993)

Note: In all the above, VRM = visual recognition memory; SD = standard deviation; r = correlation coefficient.

Rose et al, 1997. Continuity in visual recognition memory: Infancy to 11 years. Intelligence, vol 24, 381-392. I believe this is the paper to which refer in your email. As you can see above, the 8% VRM difference would translate into 5.73 IQ points, not over 10 points.

Rose et al., 1989. Infant visual attention: Relation to birth status and developmental outcome during the first 5 years. Developmental Psychology, vol 25., 560-576.

Rose et al., 2001. Attention and recognition memory in the 1st year of life: A longitudinal study of preterm and full-term infants. Developmental Psychology, vol 37., 135-151.

We hope this information is helpful to you.

Sue Rose.
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